AMENDMENTS

In the Claims

The following is a marked-up version of the claims with the language that is underlined ("___") being added and the language that contains strikethrough ("—") being deleted:

1. (Currently Amended) A method for implementing smart Digital Subscriber Line (DSL) for Long reach Digital Subscriber Line (LDSL) systems, the method comprising:

defining a candidate system to be implemented by an LDSL system, wherein defining a candidate system comprises defining a number of power spectral density (PSD) masks;

optimizing criteria associated with the candidate system to create an optimized candidate system; ~~and~~

selecting the optimized candidate system to implement in an LDSL system; wherein,

one of the number of masks is defined by the following relations, wherein f is a frequency band in kHz and D is the value of the mask in dBm/Hz:

for 0<f≤4, then D=-97.5, with max power in the in 0-4 kHz band of +15 dBrn;

for 4<f≤5, then D=-92.5+18.64 log2(f/4);

for 5<f≤5.25, then D=-86.5; for 5.25<f≤16, then D=-86.5+15.25 log2(f/5.25);

for 16<f≤32, then D=-62+25.5 log2(f/16);

for 32<f≤138, then D=-36.5; for 138<f≤323.4375, then D=-31.8;

for 323.4375<f≤517.5, then D=-31.8-0.0371 x (f-323.4375);

for 258.75<f≤1800, then D=max(-39-23.27 x log_2 (f/517.5),-65);

for 1800<f≤2290, then D=-65-72 x log_2 (f/1800);

for 2290<f≤3093, then D=-90;

for 3093<f≤4545, then D=-90 peak, with max power in the [f,f+1 MHz] window of (-36.5-36 x log_2 (f/1104)+60) dBm; and

for $4545<f\leq 11\ 040$, then D=-90 peak, with max power in the [f,f+1 MHz] window of -50 dBm.

2-10. (Canceled)

11. (Currently Amended) ~~The method of claim 1 wherein~~ A method for implementing smart Digital Subscriber Line (DSL) for Long reach Digital Subscriber Line (LDSL) systems, the method comprising:

defining a candidate system to be implemented by an LDSL system, wherein defining a candidate system comprises defining a number of power spectral density (PSD) masks;

optimizing criteria associated with the candidate system to create an optimized candidate system;

selecting the optimized candidate system to implement in an LDSL system; wherein,

one of the number of masks is defined by the following relations, wherein f is a frequency band in kHz and M is the value of the mask in dBm/Hz:

for $0<f<4$, then $M=-97.5$; for $4<f<80$, then $M=-92.5+4.63\log_2(f/4)$;

for $80<f<138$, then $M=-72.5+36\log_2(f/80)$; for $138<f<1104$, then $M=-37.9$;

for $1104<f<1622$, then $M=-37.9-15.5\log_2(f/1104)$; for $1622<f<3750$, then $M=-46.5-2.9\log_2(f/1622)$;

for $f=3750$, then $M=-76.5$; for $f=3925$, them $M=-101.5$; and for $f>3925$, then $M=-101.5$.

12. (Currently Amended) ~~The method of claim 1 wherein~~ A method for implementing smart Digital Subscriber Line (DSL) for Long reach Digital Subscriber Line (LDSL) systems, the method comprising:

defining a candidate system to be implemented by an LDSL system, wherein defining a candidate system comprises defining a number of power spectral density (PSD) masks;

optimizing criteria associated with the candidate system to create an optimized candidate system;

selecting the optimized candidate system to implement in an LDSL system; wherein,

one of the number of masks is defined by the following relations, wherein f is a frequency band in kHz and D is the value of the mask in dBm/Hz:

for $0<f<4$, then $D=-97.5$; for $4<f<25.875$, then $D=-92.5+21 \log_2(f/4)$;

for $25.875<f<1104$, then $D=-38.3$;

for $1104<f<1622$, then $D=-38.3-14.75 \log_2(f/1104)$;

for $1622<f<3750$; then $D=-46.5-2.9 \log_2(f/1622)$;

for $f=3750$, then $D=-76.5$; and for $f>3925$, then $D=-101.5$.

13. (Currently Amended) ~~The method of claim 1 wherein~~ A method for implementing smart Digital Subscriber Line (DSL) for Long reach Digital Subscriber Line (LDSL) systems, the method comprising:

defining a candidate system to be implemented by an LDSL system, wherein defining a candidate system comprises defining a number of power spectral density (PSD) masks;

optimizing criteria associated with the candidate system to create an optimized candidate system;

selecting the optimized candidate system to implement in an LDSL system; wherein,

one of the number of masks is defined by the following relations, wherein f is a frequency band in kHz and U is the value of the mask in dBm/Hz:

for 0<f<4, then U=-97.5;

for 4<f<25.875, then U=-92.5+21.5 $\log_2$(f/4);

for 25.875<f<138, then U=-34.5;

for 138<f<276, then U=-34.5-26 $\log_2$(f/138);

for 276<f<f_int, then U=-60.5-95 $\log_2$(f/276); and

for f_int<f<686, then U=10$\log_{10}$(0.05683*f^(1.5)).

14. (Currently Amended) ~~The method of claim 1 wherein~~ A method for implementing smart Digital Subscriber Line (DSL) for Long reach Digital Subscriber Line (LDSL) systems, the method comprising:

defining a candidate system to be implemented by an LDSL system, wherein defining a candidate system comprises defining a number of power spectral density (PSD) masks;

optimizing criteria associated with the candidate system to create an optimized candidate system;

selecting the optimized candidate system to implement in an LDSL system; wherein,

one of the number of masks is defined by the following relations, wherein f is a frequency band in kHz and M is the value of the mask in dBm/Hz:

for $0<f<4$, then $M=-97.5$;

for $4<f<80$, then $M=-92.5+4.63 \log_2(f/4)$;

for $80<f<138$, then $M=-72.5+36 \log_2(f/80)$;

for $138<f<1104$, then $M=-37.9$;

for $1104<f<1622$, then $M=-37.9-15.5 \log_2(f/1104)$;

for $1622<f<3750$, then $M=-46.5-2.9 \log_2(f/1622)$;

for $f=3750$; then $M=-76.5$;

for $f=3925$, then $M=-101.5$; and

for $f>3925$, then $M=-101.5$.

15. (Currently Amended) ~~The method of claim 1 wherein~~ A method for implementing smart Digital Subscriber Line (DSL) for Long reach Digital Subscriber Line (LDSL) systems, the method comprising:

defining a candidate system to be implemented by an LDSL system, wherein defining a candidate system comprises defining a number of power spectral density (PSD) masks;

optimizing criteria associated with the candidate system to create an optimized candidate system;

selecting the optimized candidate system to implement in an LDSL system; wherein,

one of the number of masks is defined by the following relations, wherein f is a frequency band in kHz and U is the value of the mask in dBm/Hz:

for $0<f<4$, then $U=-97.5$;

for $4<f<25.875$, then $U=-92.5+21.5 \log_2(f/4)$;

for $25.875<f<138$, then $U=-34.5$;

for $138<f<276$, then $U=-34.5-26 \log_2(f/138)$;

for $276<f<f\_int$, then $U=-60.5-95 \log_2(f/276)$;

for $f\_int<f<686$, then $U=10log10(0.05683*f\hat{}(1.5))$; and

for $f>686$, then $U=-100$.

16. (Currently Amended) ~~The method of claim 1 wherein~~ A method for implementing smart Digital Subscriber Line (DSL) for Long reach Digital Subscriber Line (LDSL) systems, the method comprising:

defining a candidate system to be implemented by an LDSL system, wherein defining a candidate system comprises defining a number of power spectral density (PSD) masks;

optimizing criteria associated with the candidate system to create an optimized candidate system;

selecting the optimized candidate system to implement in an LDSL system; wherein,

one of the number of masks is defined by the following relations, wherein f is a frequency band in kHz and D is the value of the mask in dBm/Hz:

for $0<f<4$, then $D=-97.5$;

for $4<f<25.875$, then $D=-92.5+21 \log_2(f/4)$;

for $25.875<f<1104$, then $D=-38.3$;

for $1104<f<1622$, then $D=-38.3-14.75 \log_2(f/1104)$;

for $1622<f<3750$, then $D=-46.5-2.9 \log_2(f/1622)$;

for $f=3750$, then $D=-76.5$; and

for $f>3925$, then $D=-101.5$.